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CANADA AT WAR

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Research at War

FOR the last three and a half years scientific research in Canada has been directed almost wholly to war problems. Serving as the central co-ordinating authority is the National Research Council in Ottawa, which directs this research in its own laboratories and in universities and industries across Canada. Working in close co-operation with it are the three armed services, for which the council is the official research station.

Some of Canada's ablest scientists are engaged in the council's investigations and experiments,

many of which are secret. In time of war the research problems that arise are more urgent than those of peacetime, and the time that can be devoted to them is short. Information must be obtained quickly, and teams of workers must be used instead of individuals in order to achieve results quickly. Most of the long-term researches must be laid aside until later.

The council has been able to step up its work to meet wartime conditions and has found, too, that much of its peacetime research has had a direct bearing

on the solution of war problems.

In addition to specific work for the armed services in its greatly expanded program, the council has made great progress in the field of medical research and has rendered valuable assistance in its investigations for war industries.

In the chemistry and biology divisions especially the selection and testing of suitable materials for the use of the armed forces has been a major problem. In physics, electrical and mechanical engineering the design and development of new detecting devices to locate aircraft, submarines, mines and other enemy equipment have been promoted with success. Testing of engines, hulls, aircraft and many other items of equipment used in warfare has been done on a large scale.

Secret projects undertaken by the division of physics and electrical engineering at the request of the armed services include research on a thermal problem being pursued in collaboration with Britain and the United States.

Some of the council's more interesting achievements have been:

Bacon.—Investigations to de-

termine the best treatments for preserving bacon when transported under ordinary unrefrigerated conditions resulted in the adoption of a standard cure by Canadian packers. This practice has proved so successful that Canadian bacon now is held in higher favor on the British market than ever before.

Eggs.—Methods of assessing the quality of dried egg powder were developed, and specifications for the processing and storage of dried eggs were prepared and accepted. The result is that Canadian produced egg powder is recognized in Britain as having the highest average quality of any egg powder available.

Fats.—In order to find alternatives for vegetable oil shortenings now in short supply, studies are being made on the conversion of linseed oil to an edible shortening. The processing of oil from sunflower seeds and other oil seed crops, including certain weed seeds, is being undertaken.

Irish Moss (Seaweed).—Processing procedures were developed to produce an odorless, tasteless, light-colored preparation which would give a strong jelly in canning. It is expected

several million pounds of Irish moss will be harvested on the east coast annually.

Dehydrated Meat.—Investigations on the drying of pork have shown that an excellent product can be prepared that retains about 75% of its natural vitamin B1 content after cooking and drying. It can be pressed into blocks and has the same caloric value as the army emergency ration chocolate bar. Since a tasting panel rated it more palatable than a chocolate bar, blocks are being prepared for test by the army.

Emergency Refrigeration.—Equipment was developed for refrigerating ordinary cargo space for the transport of perishables which combines economy of operation and rapidity of installation with other requirements. The refrigeration proposed consists of prefabricated equipment suitable for converting an ordinary cargo hold of 50,000 cubic feet to a refrigerated space without delaying the vessel. In the successful experiments storage practice was modified.

Industrial Uses of Wheat.—Only when cheap fermentable materials such as molasses are in short supply can wheat be

used to advantage in the production of alcohol. At present virtually every distillery in Canada is making alcohol from wheat.

A fermentation process has been developed for the production of butylene glycol from wheat. This chemical can be converted to butadiene, which is an intermediate material required in the process of manufacturing the synthetic rubber known as buna-S. Pilot plant investigations are being initiated to make large-scale studies applicable to commercial practices and to obtain information as to production costs.

Butylene glycol produced from wheat also has many other possibilities, such as in the manufacture of solvents, plastics, pharmaceuticals and particularly as an anti-freeze.

Because shortages of starch and starch products formerly made principally from imported products have aroused interest in obtaining starch from wheat, an improved method for separating the starch and gluten fractions of wheat flour has been developed. Wheat starch is equally as suitable for the manufacture of sugars and syrups as is corn or potato starch. It is

known also to be suitable for other industrial uses as in adhesives and sizings for papers and textiles. Methods to improve industrial products made from wheat starch are being investigated.

Wheat, the council finds, is a costly raw material for industrial use and is practicable only when cheaper raw materials are unavailable or specialized products which command premium prices can be manufactured from it. The maximum quantity of wheat which might be used for such industrial purposes would make only a very small contribution to the solution of Canada's wheat surplus problem.

Natural Rubber.—In investigations so far into methods for the extraction of natural rubber from native and introduced plants, only two plants appear to have a useful rubber content—the natural milkweed and the introduced Russian dandelion. Methods have been developed for mechanically extracting the gum from milkweed, and while this gum contains both rubber and resins, it shows promise as an agent for improving certain properties, such as heat and tear resistance, of synthetic rubber. A small processing plant will

provide five tons of milkweed gum this fall to be used in a further experimental study of its value as a compounding agent.

Aircraft Operation.—Many compounds have been investigated and some found promising in seeking means to diminish frost deposition and adherence on grounded aircraft.

Leather Substitutes.—To relieve a scarcity of leather, plastic soles of cotton fabric and suitable plastics have been made up and, after successful laboratory tests, now are being given field tests. Apart from saving sole leather, these soles, since both surfaces are identical, have the advantage over leather of not being required to be stamped in rights and lefts.

Micro-analysis.—Before the war the identification of organic compounds available in too minute quantities for normal analytical methods was done in Germany. The National Research Council's laboratory now handles all of its own work plus that sent in by the chemical warfare directorate of the Department of National Defence, explosive research laboratories and Canadian universities.

Plastics.—A novel method for curing resins used in the

manufacture of plywood articles has been developed and shows much promise of speeding up production. Work is being done on plastic scabbards, goggles for general service use, identification tags, crash helmets, moulded plywood units for Carley floats, sponge plastics, utilization of plastics in place of rubber, metals, etc.

Textiles.—Investigations have been conducted in mildew and rotproofing (sandbags, tarpaulins, etc.) waterproofing and flameproofing. Among substitute materials alternatives to silk for parachutes were the first project taken up, and when its immediate aims were achieved attention was turned to cover cargo, flare and other special chutes as well as parachute design.

Aircraft De-icing.—Projects undergoing development and testing are propeller de-icing, windshield de-icing and defrosting to ensure vision under all weather conditions and wing de-icing employing heat from the engine exhaust.

Aircraft Engines.—Several projects are under investigation,

among them one relating to cracked aviation gasoline. In the past it has been considered that only straight run aviation gasoline could be used in aircraft and that thermally cracked gasoline, similar in many respects to that used in automobiles, was unsuitable for aircraft engines. As a result of tests it now has been decided that for training aircraft fuels of this type are entirely satisfactory, and a specification has been prepared. Canada is leading in this investigation.

Aircraft Structures.—In addition to tests, more fundamental investigations include the design and construction in moulded plywood of an aircraft widely employed in the air training program. The object of the undertaking was to produce an aircraft which would reduce the drain on duralumin and steel, to draw on the considerable woodworking labor potential in Canada and to demonstrate inherent superiority of this type of structure from the standpoint of aerodynamic performance and ease of production.



Facts and Figures

A Record of Canadian Achievement in War



COMBINED OPERATIONS

	Navy	Army	Air Force	Total
Present strength (more than)...	67,000	455,000	200,000	722,000
Pre-war strength (more than)...	1,700	4,500	4,000	10,200



THE ALLIED ONSLAUGHT on Sicily was a beginning, for it was the first breaching of the European fortress; but it was also a conclusion, for it was the fulfilment of the long, tiring lessons learned on the drill grounds and in the manoeuvres on the North American continent and in England; of the galling lessons learned in France and under the African sun; of the brave lessons drawn from the beaches of Dieppe.

The commander-in-chief of the Canadian Army Overseas, Lieu-

tenant-General A. G. L. McNaughton, called the Allied assault on Sicily "the most perfect example of combined operations the world has ever seen." Those combined operations, involving the greatest armada of ships in the history of arms, more than 3,000 of them, were also remarkable in the smooth, precise way that fighting men of several nations worked together. It was this smooth precision that gave the expedition its great virtue of surprise that ensures success with the fewest lives lost.

Canadian forces were represented in each arm of the operation. It was the opportunity for which the Canadian Army had been preparing for more than three years, and General Sir Harold Alexander, deputy Allied commander-in-chief, commented:

"The Canadians are fine material. . . They will be as good as any troops."

The Canadians proved themselves fighting side by side with the desert-toughened veterans of the British Eighth Army and the United States Seventh Army. From their landing near the fishing village of Pachino early in the morning of July 10, the Canadian First Division, led by Major-General Guy Simonds, was given a position of trust in the line of battle. The troops fulfilled that trust. General Sir Bernard L. Montgomery, commander of the Eighth Army, said this:

"I am very pleased indeed to have Canadians under my command. They have done well. In fact, they were terrific on the beaches and in the attack on the island."

The fact that one division was taken from the Canadian Army Overseas to participate in this campaign is an indication, as the Canadian government has declared on several occasions, that the Canadian Army can operate in part or as a whole to suit the planners of high Allied strategy.

When the assault on the beaches was made, Royal Canadian Navy landing barges bore Canadian troops through the Mediterranean surf.

Aircraft of the Royal Canadian Air Force paved the way for the invasion by systematic bombing of Italian communications, supply lines and troop concentrations, and when the attack was launched, R.C.A.F. aircraft were among those supporting the land and sea forces.

In the early days of the invasion an R.C.A.F. Spitfire squadron transferred its base from Malta to a captured enemy airdrome in Sicily to support the forward elements of the Allied forces. Its ground crews had been prepared by commando training, and its pilots seasoned by months of hard service with the western desert air force.



NAVY

Present strength.....	More than 67,000
Pre-war strength.....	" " 1,700



CANADIAN NAVAL SHIPS have been operating in the Mediterranean theatre of war for many months. Corvettes of the Royal Canadian Navy have been credited with several successes against enemy submarines in that area. One, H.M.C.S. Camrose, while protecting a convoy carrying supplies to the invasion forces in North Africa, was credited with probably damaging a submarine in an engagement which entailed depth charges, gunfire and ramming. The corvette also rescued 126 torpedoed seamen from ships of the convoy.

Since the outbreak of war, when it had 15 ships, the Canadian Navy's strength has in-

creased 36-fold, to more than 550 ships of all types. During the fiscal year ended March 31, 1943, it was planned to add about 100 ships, but 150 actually were added. This year it is planned to add some 70 fighting ships, besides others not of the combat types.

Canada is building up a flotilla of Tribal class destroyers, to be manned by Canadians. Two Tribal class destroyers were completed for the Canadian Navy in British yards in 1942. Two others now are being built in the same yards, others in Canada. As completed, they will be manned by Canadians and join the British fleet until eventually Canada has a flotilla of eight

Tribal class destroyers. The Royal Navy has placed four of its escort destroyers at the disposal of the R.C.N. These destroyers, which are of the River class, have been renamed Ottawa, Gatineau, Kootenay and Saskatchewan.

The Canadian Navy and the Royal Navy are responsible for all convoy protection on the vital North Atlantic route, assisted by the air forces of Canada, Britain and the United States. All operations are closely co-ordinated.

The Canadian Navy's duties in this work have been steadily expanded since the outbreak of war until now nearly one-half of the protection of merchant shipping is provided by the R.C.N.

While the United States retains strategic responsibility for the Western Atlantic, including escort operations not related to British trade convoys and local Canadian traffic, complete charge of trade convoys from Northwestern Atlantic ports to the United Kingdom has been as-

sumed by Canada and Great Britain. United States escort vessels are continuing to assist Canadian and British forces.

In addition to the Women's Royal Canadian Naval Service, there are three personnel components of the Canadian Navy: The Royal Canadian Navy, the Royal Canadian Naval Reserve and the Royal Canadian Naval Volunteer Reserve. The R.C.N. is the permanent core of the organization. The R.C.N.R. is composed of persons who have followed the sea as a profession. The R.C.N.V.R. is made up of civilians who, in peacetime, were not employed in occupations connected with the sea, but who have been given training to serve afloat.

There are more than 2,000 members of the R.C.N. serving with the R.N.



Operations of the Women's Royal Canadian Naval Service are described under "Women," page 31.





ARMY

Present strength.....	more than 455,000
Pre-war strength.....	" " 4,500



THE CANADIAN ARMY OVERSEAS is made up of two corps, one of three infantry divisions, the other of two armored divisions. Besides these there are large numbers of ancillary or corps troops. Corps troops are concerned with communications, repairs to equipment, transport of supplies, medical and hospital services and many other functions. The Canadian Army has more than 170 of these units mobilized in Canada and overseas.

For the last three years the task assigned to the Canadian Army Overseas has been to hold the bastions of England against invasion. Hard training and keeping pace with the constantly changing methods of modern

warfare have kept the army in fighting trim during those years.

Canadian troops are located in strategic defence areas in Newfoundland, Labrador, Alaska and islands adjacent to the West Indies and the east coast of the United States. These troops are coast artillery units, anti-aircraft units, engineer detachments, signal companies and infantry battalions with supporting services.

Canada has made provision for reinforcement of the overseas units. The army in Canada is the foundation of the overseas organization. The 255,000 Canadian troops in the North American area might be divided roughly into three groups of

80,000 each, classed as operational troops, troops in home war establishments and those in the training stream.

The operational troops defend naval bases, airdromes and ports on the Canadian coasts and vital areas inland. Troops of the home war establishments include the administrative staffs of national defence headquarters at Ottawa and the military districts and coastal commands, staffs of the 87 army training centres and schools across Canada, 7,000 or 8,000 of the Veterans' Guard engaged in guarding internment camps and various service troops. The 80,000 troops in the training stream are those who actually are receiving training for service in Canada and overseas. It takes at least four months to train a soldier.

Sixty per cent of the general service personnel in home war establishments or on the staffs of training centres in Canada are below category "A" or more

than 35 years of age or both. The army is releasing all the men that can be spared from home war establishments in Canada so they may be available for overseas service. Army strength in Canada during the 1943-44 fiscal year will undergo a reduction of 10,000 men, but this does not mean that the army will not need more men. Men recruited for general service will be trained and sent overseas as required.

The Veterans' Guard of Canada is composed of men who served with the armed forces of the Empire during World War I and are not more than 55 years of age. These men are members of the Active Army, liable to service anywhere, at home or abroad. More than 9,500 veterans are now in this service.



The operations of the Canadian Women's Army Corps are described under "Women," page 31.



"The valorous achievements of Canada's fighting forces and her valuable contributions to our common cause are helping make more certain each day that the forces of evil will ultimately be crushed."

GENERALISSIMO CHIANG KAI-SHEK.



AIR FORCE

Present strength.....	more than 200,000
Pre-war strength.....	" " 4,000



IN THE DEVASTATING pattern bombing of Sicily, in the knocking out of Italian communications, airdromes and port installations, in the hammerblows on Hamburg and Essen, the Royal Canadian Air Force showed during July what a mighty weapon Canada has forged.

Air crew of the R.C.A.F. serving with Royal Air Force squadrons form 25% of the R.A.F.'s flying strength. This does not include R.C.A.F. squadrons operating in the United Kingdom and elsewhere. There are 32 specifically R.C.A.F. squadrons already organized, and six squadrons in the process of organization.

For every R.C.A.F. air crew

member in an R.C.A.F. unit overseas there are now 11 R.C.A.F. air crew members in R.A.F. units overseas. Air Marshal Harold Edwards, C.B., air officer commanding-in-chief of the R.C.A.F. overseas, has stated that the proportion of R.C.A.F. to R.A.F. will increase rapidly.

The Canadian bomber group in Britain, which came into being at the beginning of this year, has been in every big raid of the bomber command's mounting European offensive ever since. There is now an R.C.A.F. bomber wing of an unstated number of all-Canadian squadrons operating from North Africa.

Air protection of Canada's

Atlantic shores and convoys arriving at and leaving east coast Canadian ports is the responsibility of aircraft of the eastern air command. Anti-submarine squadrons of the eastern air command flew more than 5,000,000 nautical miles during 1942. While engaged in this role they have made close to 50 attacks on enemy U-boats.

Projected average strength of the R.C.A.F. home war establishment during the fiscal year ending March 31, 1944, is approximately 35,000.



Operations of the R.C.A.F. (Women's Division) are described under "Women," page 31.

BRITISH COMMONWEALTH AIR TRAINING PLAN



ALTHOUGH THE BRITISH Commonwealth Air Training Plan is essentially Canadian, young men from all the United Nations learn the art of air combat in its schools.

An ever-growing proportion of air crew required to man the planes on the fighting fronts is trained in the B.C.A.T.P. The more than 50,000 air crew trained in the plan would be more than enough to man 15,000 combat planes. Peak production of air crew on a monthly basis will not be reached for several months.

A joint enterprise of the Canadian, Australian, New Zealand and United Kingdom governments, the plan is administered by the R.C.A.F., and more than 60% of the graduates are Canadians.

The plan is based on a proposal made to the governments of Canada, Australia and the United Kingdom on September 26, 1939, to set up a common air training system. The proposal was accepted in principle by the Canadian government on September 28. The first agreement

was signed on December 17, 1939, the same day the first contingent of the Canadian Army landed in Britain. Immediately the great project of building air-fields and training instructors began.

All the schools of the plan were to be in operation during 1942. On December 15, 1941, two days before the second birthday of the B.C.A.T.P., the final school was opened, beating the time limit by many months. There are

now 154 schools, twice the number originally projected.

Although the final stages of training of many classes of air crew cannot be completed on this side of the Atlantic, the larger part of the training is done in Canada. The following are percentages of air crew turned out under the B.C.A.T.P. who complete their training in Canada, and the percentages of training in Canada of those who complete their training in the United Kingdom:

	Percentage of air crew who complete training in Canada	Percentage of training in Canada by those who complete training in U.K.
Bombing navigators...	94	77
General navigators...		74
Wireless navigators...	19	81
Air bombers.....	..	73
Wireless air gunners...	86	76
Air gunners.....	..	58
Pilots.....	..	76

Under the original agreement Canada paid more than \$600,000,000 of the total \$900,000,000. This original agreement was intended to continue until March, 1943, but a new agreement was signed on June 5, 1942. It became effective July 1, 1942, and operates to March 31, 1945. Under the new agreement the plan is considerably enlarged.

It will cost \$1,500,000,000, 50% of which will be paid by Canada. The United Kingdom will pay the remaining 50%, less deductions representing payments made by New Zealand and Australia for the cost of training air crew.

Current monthly expenses of the plan are approximately \$40,000,000. Estimated expenditure by the R.C.A.F. for the B.C.A.

T.P. for the fiscal year ending March 31, 1944, is \$445,335,845.

The average miles flown each day in the plan, 2,006,626, is a

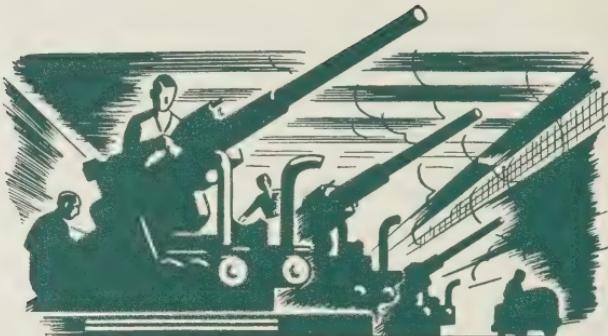
distance equal to 80 times around the earth at the equator. More than 10,000 training aircraft are in use by the B.C.A.T.P.



"In less than four years of war the armed forces of Canada have grown in numbers to three-quarters of a million men, exceedingly well trained and magnificently equipped. In the same period Canada has become a major source of supply of ships, machines, guns, munitions and other war supplies and of food-stuffs for all the United Nations. In addition to our own, thousands of airmen from our sister nations of the British Commonwealth have been trained on Canadian soil.

"In the Sicilian campaign we are witnessing the fruits of the planning, organization and co-ordination which have made all this possible for a nation of eleven and a half million people. The First Division of the Canadian Army, which for so long was in the forefront of Britain's defences, is now in the forefront of the assault upon Europe. At the appointed time, the entire army will be in action. The Canadian troops in Sicily are fighting with machines, weapons and munitions made in Canada by Canadian workmen. They are supported overhead by Canadian airmen in squadrons of the R.C.A.F. and the R.A.F. When they landed, some of their landing craft was manned by Canadian sailors. Their lines of supply across the Atlantic are protected by the Royal Canadian Navy and the Royal Canadian Air Force. Backing them, at home, is the industrial, financial and moral strength of a united Canada."

Rt. Hon. W. L. MACKENZIE KING,
Prime Minister of Canada.



MUNITIONS



CERTAIN OF CANADA's major production objectives have been reached, but there will be no slackening of the over-all effort, only a change in emphasis. Some programs will be reduced, others expanded. There are some rather drastic reductions in ground army stores on the one hand, but on the other greatly increased demands for naval vessels, guns and equipment, combat aircraft and radio-location equipment.

Ammunition.—Twenty-eight types of heavy shells of 15 different calibres, ranging from 40 mm. quick-firing to 7.2" howitzer, were being made at the close of 1942. Three types have gone out of production. Nearly 50 plants are engaged in making shells alone, and there

are scores of other plants producing components, including 12 types of fuses, 14 types of cartridge cases, two types of gaines, six kinds of primers, two types of depth charges, 10 types of trench mortar bombs, pyrotechnics of 70 different kinds as well as practice bombs, anti-tank mines and rifle grenades.

Chemicals and Explosives.—

Forty different projects are under control of the crown company, Allied War Supplies Corporation, covering an area equal to that of Montreal. Thirty-four are already in operation. Of the 18 major projects, three are mammoth ammunition-filling developments, three are making explosives, two are fuse-filling undertakings, and the others are chemicals producers.

MUNITIONS PRODUCTION RECORD



	Weekly	June 11, 1943	To
Munitions.....	\$55,000,000	\$4,500,000,000	
Ships (escort, cargo, patrol)....	6 or more	500	launched
Aircraft.....	80	8,000	
Motor vehicles.....	4,000	500,000	
Armored fighting vehicles (including tanks).....	450	24,000	
Guns (barrels or mountings)...	940 (570 guns and barrels and 370 mountings)	55,500	
Heavy ammunition (complete rounds, filled).....	525,000	38,000,000	
Small arms (rifles, machine guns, etc.).....	13,000	630,000	
Small arms ammunition.....	25,000,000 rounds	2,000,000,000 rounds	
Chemicals and explosives.....	10,000 tons	800,000 tons	
Instruments and communications equipment.....	\$4,300,000	\$160,000,000	
Total value to July 1 of contracts and commitments, including plants, plant extensions and airport construction.....		about \$9,000,000,000	
Contracted expenditure for industrial expansion and defence construction.....		about \$1,190,000,000	
Estimated production program for fiscal year 1943-44.....		\$3,425,000,000	
War production in 1942.....		2,600,000,000	
" " " 1941.....		1,200,000,000	
Value of munitions and other war materials exported in World War I.....		1,002,672,413	

Total employment exceeds 50,000 men and women. Canada is increasing its production of the secret and most powerful explosive developed anywhere during the present war.

Small Arms Ammunition.

—In 1940 Canada made only three types to a value of \$4,500,000. Now it is making 20 main types, ranging in calibre from .22 to 20 mm. and having a value of \$23,000,000 for the first four months of 1943. The plants and arsenals employ 30,000, half of them women.

Guns.—In the production of heavy guns and small arms Canada has achieved mass output on a constantly rising scale. Toward the end of 1942 the monthly output was greater than it had been for all 1941. More than one-fifth of the total government investment in war plants has been allocated to the production of guns and small arms. Twelve types of heavy ordnance and 16 types of carriages and mountings are being made in Canadian shops. Merchant ships and combat vessels made in Canadian yards now can be equipped with Canadian-made guns. Canadian field

artillery, anti-aircraft guns, tank and anti-tank guns are shipped for service on all fronts.

Small Arms. — Maximum output of the Bren gun, 8,000 a month, was reached in June and will be maintained at that rate until the end of 1944. Original schedule for the No. 4 army rifle, Canadian version of Lee-Enfield, was doubled during the last year, and the output now exceeds 34,000 a month. Its production will be increased to more than 40,000 a month. Production of the Sten will be slightly reduced from the maximum planned—10,000 a month. Orders on hand for Vickers, .5-inch naval machine guns, training rifles and 2-inch trench mortars are sufficient to carry into 1944. There are eight major plants and scores of sub-contractors engaged on small arms contracts. Output of small arms in 1942 increased 1,300% over 1941. Present production includes rifles, carbines, anti-tank rifles, smoke dischargers, bomb throwers, two types of trench mortars and four types of machine guns.

Naval Guns and Naval Orders.—Canada now is producing

four types of naval guns and 10 types of naval mountings for use both on combat and merchant ships; 20 or more components of naval torpedoes in quantity, including engines, propellers, bodies, transmission gear and gyroscopes. Many British warships being repaired and re-equipped in Canadian and United States ports are being supplied with Canadian-made guns, mountings, anti-submarine detection equipment and instruments.

Motorized Equipment.— Military motor vehicles, as distinguished from fighting units, are being turned out in more than 100 different types. Canada's output of fighting vehicles and motor transport has been one of the most important contributions its industry has made to the war. More than 36% of the motorized equipment throughout the entire Middle East was of Canadian make, and 50% of the load-carrying vehicles used by General Montgomery's victorious Eighth Army in North Africa were Canadian made.

Tanks.—The Valentine tank program — 1,400 tanks which have gone to Russia—has been

completed, and the last tank was delivered on schedule. The plant has been converted to the production of engines and components for the escort vessel program. More than 1,700 Ram tanks have been produced, and the end of the contract is being approached. The tank arsenal now is producing self-propelling gun mounts and also is to produce the M-4 tank, which is now standard for the United States, British and Canadian armies.

Instruments and Communications.— Canadian invention is responsible for seven major developments in the production of signals equipment, ranging from a "talkie-walkie" set, which one man can operate as easily as a cradle 'phone, to a super-highpower field wireless station with a radius of more than 100 miles. The 1943 production of instruments will reach the \$250,000,000 total. Three new industries have been developed in Canada to meet the demands of the radio industry, the output of which has expanded 16-fold since the beginning of the war. They are a dynamotor industry, a ceramic insulation industry and a crystal industry. All the communica-

tions devices for Canadian tanks, ships, planes and motorized vehicles are being produced in volume in this country.

Aircraft.—Canada now has achieved production of combat planes such as the Lancaster, Mosquito and Curtiss Helldiver, and production figures will increase steadily. Nine types of aircraft are being produced as follows:

FAIRCHILD CORNELL — single-engined elementary trainer.

NORTH AMERICAN HARVARD — single-engined advanced trainer.

CANADIAN ANSON — twin-engined reconnaissance bomber and bombing and gunnery trainer.

BRISTOL BOLINGBROKE — twin-engined reconnaissance bomber and gunnery trainer.

CATALINA PBY - 5A — twin-engined coastal reconnaissance amphibian.

LANCASTER — four-engined long-range bomber.

CURTISS "HELLDIVER" — single-engined navy dive-bomber.

MOSQUITO — twin-engined fighter-bomber.

NOORDUYN NORSEMAN—single-engined transport.

Canada expects later this year to be producing a transoceanic cargo plane, and the design of a Canadian four-motored transport plane has been commenced. In July Trans-Canada Air Lines inaugurated its wartime trans-Atlantic service for the Canadian government by establishing a

new record of 12 hours and 26 minutes for a non-stop flight from Montreal to Britain. Planes produced to the end of May total 8,014 as follows:

Elementary trainers.....	2,360
Advanced trainers.....	3,578
Service aircraft.....	2,076

The Canadian aircraft industry and plants in component manufacture now employ more than 100,000 workers, more than 25% of whom are women. Because production is being increased, the industry in future will be able to absorb all workers not required by the armed services and in high priority shipbuilding who hitherto were employed on these programs which are to be curtailed.

Aircraft Overhaul.—Special plants located strategically across Canada recondition and replace into service 200 planes and 800 engines every month.

Cargo Shipbuilding.—During the 20 years before the war Canada built not one seagoing merchant ship. By the end of June a total of 178 freighters had been launched, and of these 155 had been delivered. Freighters delivered, under construction

or on order total more than 300, of which 90% are 10,000-ton ships. Roughly one-half of the over-all commitments for shipbuilding in Canada, which total \$1,000,000,000, will be spent on cargo ship construction. There are 50,000 workers in the 11 Canadian yards engaged in the cargo ship program, and the types of ships are: North Sands (a coal burner basically similar to the oil burning Liberty ship in the United States); Victory, an oil burner, and a 4,700-tonner originally designed for British operation and now modified to meet Canadian operating conditions. Arrangements are being made to build next year an improved design of cargo ship to be known as the Canadian type, one of the characteristics of which will be its adaptability for either coal or fuel oil. The Park Steamship Company Limited, a crown company, turns over vessels for management and operation to steamship firms to be placed in trade designated by the Canadian Shipping Board. By August Canada expected to have 75 merchant ships manned and at sea. In addition, 30 10,000-tonners have been delivered to the company to be chartered to the Ministry of

War Transport of the United Kingdom. During the war the size of the company's fleet will be limited only by the number of Canadian crews that can be obtained. After the war the ships now being chartered to the United Kingdom will be returned to Canada and added to the Canadian merchant fleet.

Naval Shipbuilding.—Contracts have been placed for more than 500 frigates, corvettes and steel minesweepers. By the end of June a total of 230 had been launched. In addition to the steel vessel program, orders had been placed for 180 wooden patrol ships and wooden minesweepers, of which 100 were in the water by the end of June. Also two destroyers of the Tribal class are being built. Eleven yards are engaged on the construction of escort vessels. Of these the largest type is the frigate. These ships, more than 300 feet in length, are bigger, faster and more heavily armed than corvettes. There are 65 smaller boatbuilders with about 4,000 employees turning out a wide variety of small craft ranging from lifeboats to the smaller patrol boats. Of the 4,000 boats ordered from these

yards, about 75% have been delivered. Expenditure on this small craft program now totals more than \$16,000,000. In addition several eastern yards are engaged in ship repair and overhaul work. Besides the 21 major shipyards engaged on cargo and naval shipbuilding, there are well over 300 Canadian manufacturers in the component program. They supply the countless requirements of the industry, from rivets to ship plate, from navigation instruments to engines and boilers.

Destinations.—About 30% of all Canadian war production is delivered directly to the Canadian armed forces at home and abroad. The remainder goes to Britain, the United States, India, Africa, Russia, China, Australia, New Zealand and the South Pacific.

Timber.—In 1943 Canada will supply Britain with 70% of its lumber import requirements; British Empire countries with about 100,000,000 feet of urgently needed timber for military purposes, and the United States with about 1,000,000,000 feet of lumber, all of which will be directed into military uses.

Rubber.—Construction of the government-owned Polymer Corporation plant at Sarnia, Ontario, is progressing, and, when operating at capacity, it will have an output of 34,000 tons of buna-S and 7,000 tons of butyl rubber a year. The manufacture of buna-S rubber may be under way by the end of August, and the plant probably will be completed and in operation on a full scale basis by November 1. It was designed to meet the full war needs of Canada, and its production of synthetic rubber will be used only for direct war purposes and such other essential purposes as now crude rubber is used.

Steel.—Canada has built the two largest blast furnaces in the British Empire. This summer the pig iron output is at a rate of more than 2,500,000 tons a year, which is nearly four times as much as in 1939. Steel production has been doubled since the war began, and Canada now is the fourth greatest steel producer among the United Nations, exceeded only by the United States, Russia and Great Britain. The most spectacular expansion has been in the field

of alloy steels for guns, armor plate and machine tools, the production of which is now five times as great as in 1939. Before the war Canada had not manufactured a pound of armor plate, yet today the factory making this plate is turning out enough for all Canadian requirements for tanks, armored vehicles, gun shields and certain naval purposes. The output of steel ingots has increased from less than 1,500,000 tons in 1939 to an expected rate of more than 3,000,000 tons a year at the end of 1943. New rolling and finishing mills of the most modern type have been equipped and are in operation. Two new plate mills helped to increase production of plate to nearly 300,000 tons more in 1942 than in 1939. Most of this has gone into building cargo vessels and fighting ships. Shell steel production now is at about 250,000 tons a year. About 500,000 tons of steel a year are being used to make tanks and other army vehicles. The output of castings has risen from 61,000 tons in 1939 to 160,000 tons in 1942.

Non-ferrous Metals.—Canada is the greatest base metal exporting country in the world,

and this year its output will attain the highest peak in its history. This has been achieved by an enormous expansion of the aluminum industry, development of a Canadian process for the production of magnesium, extension of recovery operations at large base metal mines, revival of old mines, expansion of existing properties and development and exploitation of new marginal and sub-marginal deposits. The aluminum industry provides possibly Canada's most spectacular story of wartime expansion. The Canadian output is more than six times that of 1939, is now greater than the total 1939 production of the rest of the world and is supplying about 40% of the war requirements of the United Nations. Canada produces 95% of the combined nickel output of the United Nations; 20% of the zinc output; 12½% of the copper output; 15% of the lead output; 75% of the asbestos output and 20% of the mercury output. Canada's production of refined metals has increased as follows:

	1939 Tons	1942 Tons
Refined copper...	232,000	270,600
Refined lead.....	191,000	243,800
Refined nickel....	64,500	93,300
Refined zinc.....	175,600	216,000

POST-WAR PLANNING



CANADA'S POST-WAR PLANNING organization already has to its credit certain brass-tack legislation. This is in addition to a nation-wide chart for social security and many-sided studies of the constitutional and financial adjustments this country will find necessary when hostilities cease.

Rehabilitation benefits for members of the armed forces after their discharge from service are already in operation and have been used as a blueprint for similar measures in the United States. These provisions were sponsored by the cabinet committee on demobilization and re-establishment and the advisory committee on demobilization and rehabilitation. They include the following legislative measures to assist ex-members of the forces in their problems of civil re-establishment:

Revision of the Pensions Act, 1941.
Compulsory Reinstatement Act, 1942.

Vocational Training Co-ordination Act, 1942.

Veterans' Land Act, 1942.

The extension by order-in-council of the civil service preference to veterans of the present war, 1942.

The post-discharge re-establishment order, 1941.

A welfare division has been set up under the direction of the associate deputy minister, Department of Pensions and National Health, which includes educational and training services.

The National Fitness Act, passed by the House of Commons on July 21, 1943, was based on a recommendation of the select House committee on social security. The act provides for the setting up of a national council on physical fitness, the members of which are to be appointed by the governor-in-council. From a fund of \$225,000 the council will make grants to provinces for the promotion of physical fitness, and the provinces are expected to aid in the scheme on a 50-50 basis. The council will have power:

1. To assist in the extensions of physical education in primary and secondary schools and universities and in all educational and other establishments.
2. To encourage, develop and correlate all activities relating to physical development of the people through sports, athletics and other similar pursuits.
3. To train teachers, lecturers and instructors in the principles of physical education and physical fitness.
4. To organize activities designed to promote physical fitness and provide facilities.

5. To co-operate in the amelioration of physical defects subject to improvement through physical exercise.

Two other much discussed reports—the Marsh report and the health insurance report and draft bill—were presented before the special House of Commons committee on social security. This committee was appointed on March 8, 1943, "to examine and report on a national plan of social insurance which will constitute a charter of social security for the whole of Canada." Dr. Leonard C. Marsh's report, prepared for the advisory committee on reconstruction, aimed to set out:

1. The main features of existing statutory provisions for social security matters in Canada.

2. The methods by which these provisions can be improved and extended, particularly by transformation of the coverage and the technique to a social insurance basis.

3. The principles which should be considered if the construction of a comprehensive social security system, suited to Canadian conditions, is to be undertaken in the most fruitful and effective manner.

The report aims to provide the basis for a wide and thorough discussion of the general principles of a social security program, a necessary step before any detailed program can be carried out.

The report of the advisory committee on health insurance, under the chairmanship of Dr. J. J. Heagerty, director of public health services, included draft Dominion and provincial legislation to institute a system of health insurance, as well as the development and improvement of preventive and other public health services. The general principles of health insurance set forth in the health insurance bill were approved by the House committee on social security, which recommended:

1. That before the bill is approved in detail or amended and finally reported, full information regarding its provisions be made available to all the provinces.
2. That if possible before the next session of Parliament a Dominion-provincial conference be held to discuss complex problems involved, especially financial and constitutional questions.
3. That study of the bill be continued.
4. That the government review the existing regulations governing old age pensions, pensions for the blind and war veterans' allowance and consider the advisability of adjusting the eligibility age to a lower level and of increasing the amount of pension.
5. That an investigation be made into conditions and bases of grants of these pensions in the various provinces, cost of subsistence, inequalities, responsibility for and distribution of obligation, and all the matters relating to the problems involved, in order to effect

greater co-ordination, equality and adequate adjustments.

6. That a study of a program of social security be continued during the next session of Parliament, with the object of making a co-ordinated framework of the various topics and problems.

The advisory committee on economic policy sponsored a study of international currency and exchange stabilization entitled "Tentative Draft Proposals of Canadian Experts for an International Exchange Union." It was tabled in the House of Commons on July 12, 1943, and submitted for discussion by United Nations experts. This committee also provided the basic memorandum of the Canadian delegation to the United and Associated Nations conference on food and agriculture held in May, 1943, at Hot Springs, Virginia.

The parliamentary committees—the House of Commons committee on reconstruction and re-establishment, the House of Commons committee on social security and the Senate committee on economic re-establishment and social security—receive and discuss post-war plans and suggested legislation and make recommendations to Par-

liament on those considered feasible. Witnesses for industry, labor, the medical profession, religious bodies, social services and others presented their recommendations for post-war Canada to these committees during the session of Parliament which adjourned on July 24. In May Sir William Beveridge addressed a joint session and answered questions about his report on social insurance and allied services for Great Britain.

The House committee on reconstruction and re-establishment recommended further study of the problems submitted to it and was empowered to sit during adjournment of the House.

The Senate Committee, in view of the wide extent of its reference and the requests of important witnesses to have their hearings deferred, recommended that at the next session of Parliament a special committee be reappointed to continue its inquiry.

The advisory committee on reconstruction and the inter-departmental committees have authorized studies and set up sub-committees on aspects of post-war reconstruction.

MANPOWER

RESPONSIBILITY FOR mobilizing and allocating all manpower in Canada rests with National Selective Service under the Department of Labor.

The National Selective Service Advisory Board advises the director of National Selective Service with reference to the utilization of manpower in the prosecution of the war and the administration and enforcement of National Selective Service civilian regulations.

Labor priorities, in which every employer or establishment is classified as having very high, high, low or no labor priority, give the more than 200 National Selective Service offices a yardstick by which to gauge the importance of labor requirements.

The industrial mobilization survey plan facilitates the orderly withdrawal of replaceable workers from essential industries into the armed services and provides for their replacement with the least possible disturbance to production.

The minister of labor, at April, 1943, is empowered to

order employers in specified industries to discontinue employing persons in age classes designated for military service but not acceptable to the army, and youths 16, 17 and 18 years of age, after a specified date unless a special permit is obtained.

Four orders have been issued so far, covering a list of dozens of groups of employments.

The employees affected must register at the nearest Employment and Selective Service office. This makes available for essential work such as farming, lumbering, coal mining, fishing and munitions workmen who have been called for national service and are not acceptable to the army. Non-compliance with a direction to transfer to higher priority industry, including farm labor, will make a man liable for service in an alternative work camp on somewhat the same basis as a conscientious objector.

Teachers employed in schools, colleges and universities are to be retained in their professions. A bona fide teacher cannot be employed in any other occupation without a special permit from a Selective Service officer.

To provide manpower for fuel-wood cutting, Selective Service officers are given authority for compulsory direction for employment of men between 16 and 65 in this work. This applies also to employment in fishing and fish-processing.

Any person between 16 and 65 years of age must register for work with the local office of National Selective Service if not gainfully occupied for seven consecutive days (full-time students, housewives and clergy are not included). Men of military call-up age applying for permits to obtain employment must furnish proof that they have not contravened mobilization regulations. No Canadian employer or employee may make any employment arrangement without first obtaining authority of the local office of National Selective Service, unless the parties involved are specially excepted under the regulations.

National Selective Service is also responsible for the call-up of men for compulsory military training. Under mobilization regulations men, single or childless widowers at July 15, 1940, from the ages of 19 to 45 in-

clusive, and medically fit, are liable for military service. So far only men born between 1902 and 1924 inclusive (who have reached the age of 19) are being called. On December 15, 1942, it was announced married men between the ages of 19 and 25 would be called up.

Postponement of military service usually is granted to men engaged in essential industries. As of June 1, 1943, approximately 100,000 postponements were in effect, and it is estimated that about two-thirds of these are in agriculture and one-third in industry.

Some army personnel from operational units and depots in Canada, home war establishments and the Veterans' Guard of Canada are being made available for farm duty and compassionate farm leave to help relieve the manpower shortage in agriculture.

On the declaration on May 17 that a state of national emergency exists in regard to the production of coal in Canada, new Selective Service regulations prevent coal miners being accepted as volunteers for the armed forces, and workers in coal mines are

granted automatic postponement of military training under the National Resources Mobilization Act until February 1, 1944. Coal miners are granted leave from the armed services in Canada if they are willing to return to the mines. All ex-coal-miners are requested to return to coal mining regardless of their present occupations.

WOMEN

A RECENT ORDER from the Department of National Defence increasing pay for women in Canada's armed forces, effective July 1, and making new concessions regarding dependents' allowances is expected to result in greatly increased enlistments in the next few months.

More than 31,367 women now are serving in the armed forces, and another 65,000 are needed.

The new plan increases basic rates from the former 66 $\frac{2}{3}$ % of servicemen's pay to 80%. Trades pay for non-officers in each of the three women's services, which was formerly only two-thirds of the trades pay for servicemen, also has been increased so that it is the same as for servicemen—an additional

25, 50 or 75 cents a day according to grade.

Under the new order, a woman in one of the services married to a member of the services will not be debarred from receiving dependent's allowance providing the total of her allowance and service pay does not exceed \$2,100. The allowance may not commence until six months after the date of marriage.

A clause providing separation allowances for the first time also enables many women to enlist who formerly had been prevented from doing so because they have dependent parents or other relatives. Dependents, other than husbands and children, of women in the armed services will be eligible now for the same rate of dependents' allowances as the dependents of servicemen.

The youngest women's service organized to release men for more active duties, the Women's Royal Canadian Naval Service, had attested 3,454 officers and ratings and called up 2,803 by July 30, 1943, 13 months after its establishment in June, 1942.

"Wrens" and officers are replacing various categories of naval personnel in shore establishments at Ottawa, Halifax

CANADIAN WOMANPOWER

Women over 14 years of age in Canada.....	4,240,000
Women in industry (at Jan. 30, 1943).....	1,152,000
Engaged directly or indirectly in war industry.....	255,000
Engaged in other industry (at Jan. 30, 1943).....	936,000
Farm women (at Jan. 30, 1943)....	830,000
Women students (at Jan. 30, 1943)	309,000
Other women, including non-farm housewives (at Jan. 30, 1943)...	1,629,000
Considered unemployable.....	300,000
In the armed services.....	More than 31,367
W.R.C.N.S.....	" " 3,454
C.W.A.C.....	" " 12,500
R.C.A.F. (W.D.).....	" " 12,900
Nursing services.....	" " 2,475
Female doctors in the armed services.....	38

and Deep Brook, Nova Scotia. Eight members of the W.R.C.N.S. are working in Washington for the Canadian Navy, and the first members are to go overseas soon to replace British Wrens who have been serving in Britain with the Canadian Navy.

Formed in September, 1941, the Canadian Women's Army Corps has enlisted more than 12,500.

The Royal Canadian Air Force (Women's Division) established

in July, 1941, has enlisted more than 12,900.

Canadian women in nursing services uniforms totalled more than 2,475 at the end of July, with more than 1,746 in the Royal Canadian Army Medical Corps, 293 in the R.C.A.F. nursing service and 181 in the Canadian Navy nursing service. There are also about 255 Canadian nurses serving with the South African military nursing service.

There are 38 women doctors

in the armed services, four in the navy, 21 in the army, and 13 with the air force.

Inaugurated in July, 1940, the war emergency training program of the federal Department of Labor had enrolled 35,018 women by the end of June, 1943, and more than 25,080 had completed training.

During June 1,386 persons enrolled for full-time training in 117 industrial training centres, and 538 of these (38%) were women.

On June 30, there were training 670 women in full-time and 137 women in part-time industrial training centre classes; 748 in full-time and 69 in part-time plant school classes.

By June 30, 97 plant schools had been approved. Industry itself commenced giving training under the government program April 1, 1942.

Since the Dominion-provincial equal-cost agreement was made in July, 1942, 16 wartime day nurseries have been opened in Ontario and Quebec.

Much volunteer work of Canadian women has been co-ordinated during the last 16 months under the direction of the women's voluntary services

division of the federal Department of National War Services, and new women's voluntary service centres established will prevent overlapping of national and local volunteer projects. The most recently organized W.V.S. centres are at Calgary, Alberta, and St. Thomas, Ontario.

The block plan of contacting householders in city blocks to obtain their assistance in voluntary projects has proved highly successful to the extent that it now forms the organizational and communication background for most central offices of W.V.S. centres.

Although the block plan has been operated by the Saskatoon, Saskatchewan, W.V.S. centre for only five months, it was utilized in connection with the first mass tuberculosis survey attempted in Canada. Under the direction of the superintendent of the Saskatoon sanatorium, the survey was organized by the W.V.S. centre with volunteers going to each home interviewing householders and explaining the survey, and others staffing the clinics which were set up in several zones. The survey brought an 80% clinic attendance response from the citizens interviewed.



AID TO UNITED NATIONS



CANADA'S UNITED NATIONS
Mutual Aid Bill, passed in May, 1943, provides for the distribution of Canadian war equipment, raw materials and foodstuffs to the United Nations to the value of \$1,000,000,000 on the basis of "strategic need." Following last year's \$1,000,000,000 gift to Britain, it gives Canada direct responsibility and credit for its contributions of war supplies. The bill sets up a board, composed of five cabinet ministers, which decides where the munitions and supplies are to be sent.

Effective use in the prosecution of the war of Canadian war supplies purchased with the \$1,000,000,000 is good and sufficient consideration for transferring these war supplies to any of the United Nations, but whatever reciprocal arrangements are

practicable may be entered into. Canada's allies will furnish Canada with supplies or services in return if they can, or they will ensure the return after the war of any supplies or equipment which appear to have a post-war use. Where any terms and considerations are provided for besides strategic need, these will be clearly specified at the time of transfer. There will be no piling up of huge war debts by the sale of supplies to the United Nations for payment after the war or the institution of indefinite and uncertain post-war obligations.

To prevent financial considerations obstructing an uninterrupted flow of Canadian war supplies and food to Britain, Canada in the past instituted the following specific measures:

1. After Britain had sold

gold and used up its Canadian dollar resources in the purchase of war supplies and food from Canada, Canada proceeded to buy back before maturity Canadian government direct and guaranteed securities held in the United Kingdom. Financial assistance up to the time the \$1,000,000,-000 gift came into operation amounted to \$1,518,000,000.

2. Canada took payment in pounds sterling and thus accumulated balances in London.

3. At the beginning of 1942 Canada extended a program of financial aid which included:

- (a) the repatriation of all remaining Dominion government and Canadian National Railways securities amounting to approximately \$295,-000,000;
- (b) the consolidation of the major part of accumulated sterling balances, amounting to \$700,000,-000, into an interest-free loan for the duration of the war;
- (c) a direct gift of \$1,000,-000,000 in munitions, raw materials and food-stuffs.

The governments of the United Kingdom and Canada thus began the 1942-43 fiscal year with clear-cut financial arrangements. Speaking of these measures, Finance Minister Ilsley stated:

"They will put our financial arrangements on a clear and sensible basis, fully in accord with the realities of the war situation. They will prevent the accumulation of a huge, unmanageable war debt with all the dangers that would involve of post-war misunderstanding and difficulties. And they will reflect the determination of this nation to contribute everything possible to the general cause."

4. When the \$1,000,000,000 gift to Britain was entirely used up by December, 1942, it was necessary to find some other means of keeping Canadian supplies moving to the United Kingdom and the other United Nations.

The United Nations Mutual Aid Bill was introduced early in 1943. To tide Britain over the period before the new measure came into operation, the Cana-

dian government bought outright all British war plant investments in Canada amounting to about \$200,000,000. Canada also undertook payment of the entire cost of pay, allowances, maintenance and equipment of the R.C.A.F. squadrons operating overseas and pay, allowances and maintenance of R.C.A.F. personnel in the R.A.F. The additional cost of this undertaking over and above Canada's 1942 commitments on that account is about \$363,000,000. This means that with that much more money Britain can purchase war materials and supplies in Canada, and there will be a corresponding decline in the extent to which Britain in 1943 will depend on mutual aid.

Sterling area purchases and other payments in Canada during the period of use of the \$1,000,000,000 gift were, in millions of dollars:

A. Portions attributed to the gift:

(1) Munitions ..	689
(2) Foodstuffs and raw ma- terials.....	311

	1,000 (*)

B. Remaining portion attribu- ted to other sources of financing:	
(1) Commodity exports	
(a) To the United Kingdom.....	140
(b) To the sterling area other than the U.K.....	79

	219
(2) Services, etc.....	221

	440

On May 11 Prime Minister King announced that a protocol setting forth the munitions, war materials and essential supplies to be furnished to the Union of Soviet Socialist Republics by the United States, the United Kingdom and Canada during the year beginning July 1, 1943, was being negotiated, with Canada a direct party to the protocol. Hitherto the supplies which have gone to Russia from Canada have been included in the commitments made by the United Kingdom or in some cases by the

(*) Of this total, supplies to the value of \$61,000,000 are known to have been transferred to Russia, and mechanical transport valued at \$71,000,000 to Australia, New Zealand and other parts of the sterling area.

United States. Of the \$1,000,000,000 gift to Britain last year, supplies to the value of \$61,000,000 were transferred to Russia.

Canada has sent Russia more than 1,400 Canadian tanks, more than 2,000 Canadian universal carriers, Canadian naval guns and Canadian Bren guns and anti-tank rifles, as well as ammunition for heavy guns and small arms. In addition, to Russia have gone machine tools, boots, gloves, textiles, clothing and personal equipment and large shipments of the five metals most urgently required for the Russian war program.

Canada also has extended a \$10,000,000 credit to Russia covering purchases of Canadian wheat and flour. More than \$1,000,000 has been contributed to the Canadian Red Cross for Russian relief. More than \$3,000,000 has been contributed to the Canadian Aid to Russia Fund.

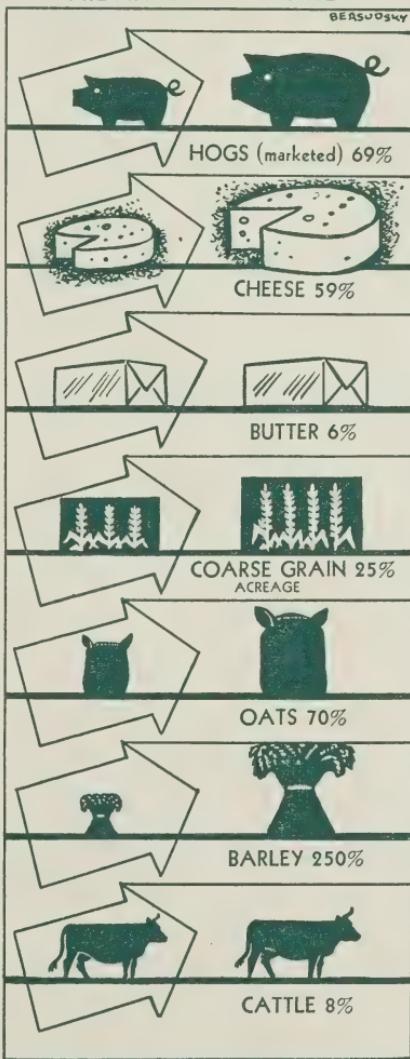
To the United States Canada has been shipping war materials such as components of various munitions, ammunition, secret electrical devices and base metals. These transactions are handled by a government company, War Supplies Limited.

CANADIAN FOOD PRODUCTION INCREASES

PRE-WAR

1942

BERSUDSKY



Arms sent to China include 25-pounder guns, Bren and Boys guns, rifles and ammunition for these weapons. It is expected that many additional types of equipment will be shipped, now that the Mutual Aid Board is operating. Up to January 27, 1943, the Canadian Red Cross sent to China cash and medical supplies valued at \$199,956. The Chinese War Relief Fund sent \$122,303 in cash, and the Friends of China approximately \$10,000. The total of \$332,259 has been greatly increased during the current year, particularly by cheques presented to Madame Chiang Kai-shek during her visit to Ottawa, when the Chinese War Relief Fund donated \$177,000, the Canadian Red Cross \$100,000, and the Junior Canadian Red Cross \$10,000.

Fifteen thousand tons of wheat go regularly every month to Greece as a gift of the Canadian people. The total for the first six months of 1943 was 2,551,172 bushels. More than \$93,000 worth of medical supplies have been provided by the Greek War Relief Fund. Subscriptions to the fund for 1943 totalled more than \$733,000.

A draft agreement for a United

Nations relief and rehabilitation administration framed by the governments of the United States, the United Kingdom, the Soviet Union and China was tabled June 18 by Prime Minister King, who stated that Canada is prepared to play its full part in international relief.

A Canadian has been chosen chairman of the United Nations interim commission on food and agriculture.

SALVAGE

REPORTS SUBMITTED by 77% of the 1,681 voluntary salvage committees organized under the salvage division of the federal Department of National War Services show that 366,905,561 pounds of salvage materials were collected and marketed in Canada during the 26 months from May 1, 1941, to June 30, 1943.

Province	Materials (lbs.)	Lbs. per Population
P.E.I.....	2,620,917	27,588
N.S.....	7,221,012	12,497
N.B.....	8,277,099	18,112
Que.....	56,564,545	16,976
Ont.....	192,583,922	50,840
Man.....	37,395,592	51,227
Sask.....	15,508,566	17,309
Alta.....	21,232,610	26,674
B.C.....	25,501,298	31,175
TOTAL...	366,905,561	Av. 31,932

CANADA-U.S. CO-OPERATION



IN AN EXCHANGE OF NOTES concluded on November 30, 1942, Canada and the United States expressed their desire to continue in the post-war world their wartime co-operation:

"Our governments have in large measure similar interests in post-war international economic policy . . . They will seek to furnish to the world concrete evidence of the ways in which two neighboring countries that have a long experience of friendly relations . . . may promote by agreed action their mutual interests to the benefit of themselves and other countries."

In the fields of defence, economics and war production, Canada and the United States have joined forces through the following committees:

Permanent Joint Board on Defence
Materials Co-ordinating Committee
Joint Economic Committees
Joint War Production Committee
Joint Agricultural Committee

Canada is also a member of the Combined Production and

Resources Board with Great Britain and the United States.

On August 17, 1940, at Ogdensburg, New York, Canada and the United States signed the agreement on which co-operation in defence is based.

Recommendations of the defence board have resulted in the construction of a chain of air bases between Edmonton and Alaska and the Alaska Highway.

Establishment of the Materials Co-ordinating Committee was announced May 1, 1941. Through sub-committees on forest products, copper, zinc and ferro-alloys, the movement of primary materials between the two countries is promoted, available supplies are increased and information exchanged on raw material stocks, production and consumption in the United States and Canada.

The Joint Economic Committees were formed in June, 1941, to act in an advisory capacity to the governments at Ottawa and Washington on fo-

reign exchange control, economic controls, price policies, tariffs and duties and post-war planning.

At Hyde Park, New York, on April 20, 1941, the Prime Minister of Canada and the President of the United States agreed "as a general principle that in mobilizing the resources of this continent, each country should provide the other with the defence articles which it is best able to produce, and, above all, produce quickly, and that production programs should be co-ordinated to this end."

According to what is known as the Hyde Park Declaration, the United States agreed to buy enough Canadian war goods to enable Canada to pay for essential U.S. war materials.

This measure has proved effective, and Canada now is paying to a large extent for imports by the sale of war supplies to the United States. At present, by economizing in non-essential expenditures of United States dollars, Canada has a small surplus on civilian or non-war account with the United States.

Canada does not use lend-lease accommodation utilized by other United Nations.

There has been no relaxation in foreign exchange control, which prevents Canadians from obtaining United States currency in Canada for pleasure travelling in the United States.

Formation of the Joint War Production Committee was announced November 5, 1941. The duty of this committee is to reduce duplication, arrange uniform specifications and quick exchange of supplies, break transportation bottlenecks and exchange information. Ten technical sub-committees carry out the work of the committee.

The Joint Agricultural Committee was set up in March, 1943, to keep agricultural and food production and distribution in Canada and the United States under continuing review. This is to further such developments as may be desirable in reference to those phases of wartime agricultural and food programs that are of concern to both countries.

To co-ordinate policies of food production, and to supervise the preparation of information on Canada's food position, the government has set up the Food Requirements Committee, which works closely with the Combined

Food Board of the United Kingdom and the United States.

Canada is manufacturing \$1,000,000,000 of war material and equipment for the United States.

Recent substantial purchases of Canadian securities by United States investors make possible the redemption August 16, 1943, of two Canadian bond issues payable in New York and maturing during the next year or two. The redemption of these outstanding obligations will offset in part an increase in Canada's external indebtedness.

Canada has contributed the equivalent of \$25,000,000 to the United States by the free training of United States airmen in Canada. About 5,000 men came to Canada from the United States in the early days of the war and were trained here at Canadian cost. Three thousand of them elected to be transferred to United States forces when their country entered the war, and 2,000 of them chose to remain in the Royal Canadian Air Force. The cost of the training Canada gave the 3,000 men was approximately \$25,000,000.



CANADIAN MERCHANT SEAMEN

Certified to date in central registry, Ottawa	40,000
Serving on vessels of Canadian registry listed as missing and presumed dead	660
Known to be prisoners of war	124
Claims paid by Department of Transport for loss of effects by Canadian merchant seamen due to enemy action	858
Dependents of Canadian merchant seamen being paid death pensions by the Canadian Pension Commission	602
Disability pensions being paid to Canadian merchant seamen by the Canadian Pension Commission	27
Persons benefiting by merchant seamen pensions (not including detention allowance for prisoners of war):	
Adults	388
Children	241
	—
	629

CONTROLS



WARTIME CONTROLS IN CANADA are administered chiefly by the following departments, each represented by a minister of the government, who is responsible to the people of Canada through Parliament:

The Wartime Industries Control Board, Department of Munitions and Supply, is responsible for the supply and allocation of all materials essential for war needs.

The Wartime Prices and Trade Board, Department of Finance, has supreme authority in the field of price control and consumer rationing.

National Selective Service, Department of Labor, is responsible for the allocation of manpower to the armed forces, agriculture and essential war industry. (See separate section on Manpower).

The National War Labor Board administers government regulations on wages control and also regulations on the cost-of-living bonus.

The Foreign Exchange Control Board, Department of Finance, has control over all finan-

cial transactions between residents of Canada and other countries.

The Wartime Prices and Trade Board was constituted under the War Measures Act, September 3, 1939, "to provide safeguards under war conditions against any undue advancement in the price of food, fuel and other necessities of life, and to ensure an adequate supply and equitable distribution of such commodities."

The responsibility of the Wartime Prices and Trade Board for policing individual prices was broadened in December, 1941, when the government made the board responsible for the maintenance of the over-all price ceiling, which was established to prevent inflation.

Then the cost-of-living index showed a percentage advance of 14.9 above the pre-war level. The December, 1942, index, after 12 months of price ceiling, showed a cost-of-living advance of only 2.6%.

To stabilize the cost-of-living, prices of certain food commodi-

ties were lowered in December, 1942, by the reduction of duties and taxes and payment of subsidies.

From September 3, 1939, to March 31, 1943, import and domestic subsidies totalled \$65,-161,507, of which the food group accounted for \$28,539,041, or almost half. It is estimated that consumers' subsidies to be paid during the fiscal year ending March 31, 1944, will amount to \$120,000,000.

Commitments to Great Britain, the needs of the armed for-

ces, transportation difficulties and shipping losses have necessitated consumer rationing which ensures an equitable distribution of the necessities of living. Each Canadian is entitled to the following rations:

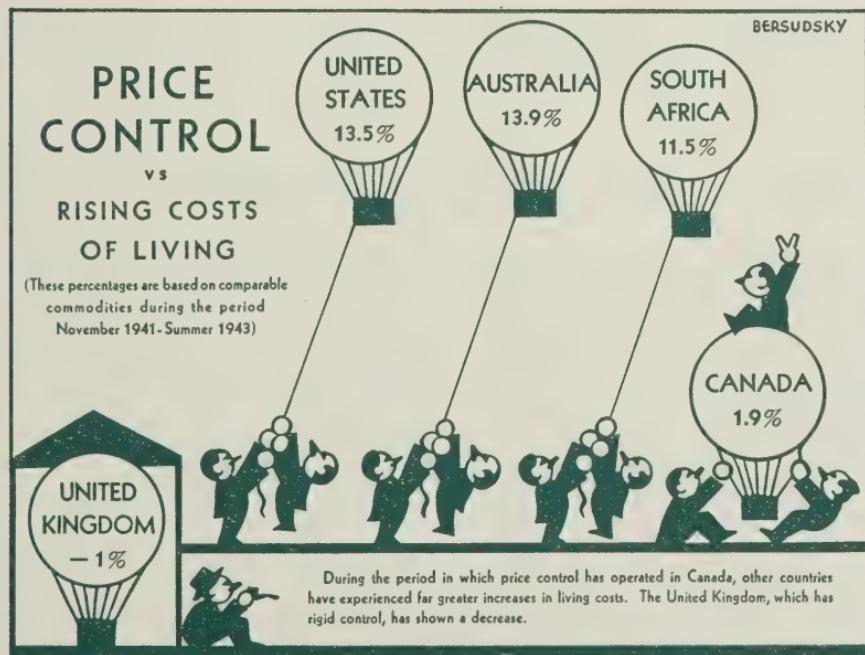
TEA.....one ounce weekly, or
COFFEE....four ounces weekly.

(The tea and coffee ration is not available to children under 12).

SUGAR....half a pound weekly
(plus special seasonal allowance to housewives for canning).

BUTTER.....half a pound weekly.

MEAT.....one to two and a half pounds weekly according to type of meat.



GASOLINE...non-essential passenger cars—40 coupons a year; essential and commercial vehicles—ration tailored to meet individual needs. (Unit as at July, 1943 = 3 gallons).

To help control volume of purchasing power, as well as production costs, both of which influence prices, wages and salaries in Canada were stabilized late in 1941. To adjust wages to wartime price levels, however, every employer, except in a few exempted classes, must pay a bonus to employees below the rank of foreman. This bonus varies with each point change in the adjusted cost-of-living index (August, 1939 = 100) as announced every three months by the Na-

tional War Labor Board. The bonus was increased July 2, 1942, when the adjusted index rose to 117.0. Since that date there has not been a quarterly point change in the index. At July 2, 1943, the time for quarterly reckoning, the index was 117.9.

The bonus payment is as follows: 25c for each point rise in the cost of living for all adult male employees and for all other employees employed at basic wage rates of \$25 or more a week; one per cent of their basic weekly wage rates for male employees under 21 and women workers employed at basic wage rates of less than \$25 a week.



WAR RISK INSURANCE

Distribution of war risk insurance in Canada at May 31, 1943,

other than grain, transit and Dominion government property:

	Number of Risks	Total Sum Insured	Total Premiums	Percentage of Total Premiums
Alberta.....	566	\$ 50,495,100	\$ 119,451	2.5
British Columbia.....	14,047	621,048,436	1,383,486	28.8
Manitoba.....	356	25,583,391	64,123	1.4
New Brunswick.....	1,424	78,181,271	178,652	3.7
Nova Scotia.....	4,327	174,507,605	398,742	8.3
Ontario.....	3,337	510,981,736	1,237,075	25.8
Prince Edward Island..	194	7,945,930	16,684	.3
Quebec.....	4,395	571,524,810	1,364,776	28.4
Saskatchewan.....	112	14,015,000	35,309	.8
Other.....	17	389,592	867
	28,775	\$2,054,672,876	\$4,799,171	100%

JULY HIGHLIGHTS

- July 1. The third compulsory employment transfer order is announced to make men available for more essential work after July 15, this being the first to include youths from 16 to 18 years as well as men in call-up categories.
- July 4. The first freight-loaded glider to be towed across the Atlantic arrived safely after taking off on its 3,500-mile, 28-hour flight from Montreal, the British Air Ministry announces. Two Canadians were in the R.A.F. Transport Command crew of four.
- July 5. A tabled return in the House of Commons shows that 24,833 of the men called up between December 1, 1942, and April 30, 1943, were accepted at army training centres. There were 128,902 medical examinations given, and 62,158 were granted postponements.
- July 6. The Dominion Bureau of Statistics reports that the cost-of-living index advanced from 118.1 at May 1 to 118.5 at June 1, the increase not being sufficient to affect the cost-of-living bonus paid to workers.
- July 9. The first meeting in Canada of the Combined Production and Resources Board of the United States, the United Kingdom and Canada is held at Ottawa.
- July 10. Labor Minister Mitchell announces the fourth compulsory employment transfer order listing a wide range of work from which youths of 16, 17 and 18 will be transferred to more essential jobs after July 24, thus bringing youths under the first and second compulsory transfer orders.
- July 12. Finance Minister Ilsley tables tentative draft proposals of Canadian experts for an international exchange union.
- July 13. The Canadian government is building a military road in Newfoundland at an estimated cost of \$1,478,000, states the air minister in a tabled return.
- July 14. Sir Arthur Salter, joint parliamentary secretary to the British Ministry of War Transport, says Canada now is building approximately the same tonnage of merchant ships as Great Britain, in addition to corvettes and other naval craft.
- Labor Minister Mitchell says Canada must cut and bring to the surface more coal from its own mines to meet the threat of a possible shortage of fuel in the future.
- July 15. General Henri Giraud, commander-in-chief of the French Army in North and West Africa and joint chairman of the French Committee for Liberation, arrives in Ottawa by plane from Washington for a one-day stay.

JULY HIGHLIGHTS—*Continued*

July 16. The Dominion government will pay to eastern farmers a per-bushel subsidy based on a sliding scale to encourage them to buy western feed grains, it is announced by the Department of Agriculture.

July 21. The House of Commons passes a physical fitness bill which proposes a federal grant of \$225,000 to be divided according to population among the provinces, which are expected to contribute on a 50-50 basis.

Immigrants to Canada from September 1, 1939, to May 31, 1943, totalled 34,999, states a report in the House of Commons.

A bill amending the British North America Act to permit postponement until after the war of redistribution of seats in the Canadian House of Commons is passed by the British Parliament and receives royal assent.

July 22. It is reported to the Senate that 2,250,000 workers in Canada now come under the Dominion Unemployment Insurance Commission.

A war appropriation bill for the fiscal year 1943-44 for \$3,890,000,000 is passed by the House of Commons, its largest items covering the armed services—navy, \$489,144,967; army, \$1,764,000,000; air force, \$1,129,-421,414—and the Department of Munitions and Supply, \$316,300,000.

A tabled return shows \$47,534 was spent by the Dominion government in oil prospecting in Northern Alberta and British Columbia during the fiscal year ended March 31.

July 23. Trans-Canada Air Lines inaugurates with a Lancaster its wartime trans-Atlantic service for the Canadian government and establishes a record for a non-stop flight from Montreal to Britain—about 3,100 miles in 12 hours and 26 minutes, thus clipping 25 minutes from the previous record.

A tabled return shows 2,138 internees have been released in Canada since the outbreak of war.

July 24. The Canadian House of Commons adjourns one of the longest sessions in recent years, after sitting since January 27, 1943, and plans to resume sittings January 26, 1944.

Finance Minister Ilsley announces the Dominion will increase the maximum pensions payable under the Old Age Pensions scheme from \$20 to \$25 a month, the increase to affect about 183,601 old age pensioners and 6,374 blind pensioners. The Dominion pays 75% of the pensions.

July 28. Defence Minister Ralston arrives by plane in Britain and confers with the chief of the Canadian general staff, Lieutenant-General Kenneth Stuart, who had visited the Mediterranean war theatre during the commencement of the Sicilian campaign.



THE FATE OF TYRANTS...

PRIME MINISTER KING on June 10, 1940, the day Mussolini handed declarations of war to the ambassadors of Britain and France:

★ *"History, I believe, will record no action more ignoble than that of Mussolini. These tragic months he has sat like a carrion bird of prey waiting for brave men to die."*

"Today he has declared war on those who were the traditional friends of his countrymen."

"Callously and cynically he has chosen what he believes is the fateful hour for the swoop and the treacherous blow."

"Peaceful overtures, proffered concessions, bonds of ancient friendship sealed by the memory of common sacrifices in the cause of freedom—all these he has bartered for the vision of conquest and the phantom of power."

"Mussolini, the dictator who holds the Italian people in thrall, has chosen what he believes to be the psychological moment to strike at Britain and France in the Mediterranean and Africa . . . for such glory as calculated duplicity and treachery can bring."

". . . No one can foretell the horrors that the spread of warfare may bring to the world, but one thing is sure—retribution will overtake all tyrants, and the dictator of Italy amongst them."

That retribution now is being realized. Mussolini already had fallen, the Italian African empire was a memory of bitter defeat, "the complete military conquest and occupation of Sicily" was "only a matter of a comparatively short time" when Prime Minister King broadcast to the Canadian people on August 2, 1943:

★ *"While in all else there may be much of conjecture, one thing at least is certain. The Fascist regime which controlled Italy for the past 20 years is at an end. That fact is of tremendous moral significance. Italian Fascism was the model and example of all other Fascist regimes, including the Nazi regime in Germany. The very essence and core of Fascism was supposed to be its military efficiency, its strength and its stability. When put to the acid test, it has proved to have none of these qualities. Instead, it has crashed about the head of its founder. For the other Fascist dictators—the little Mussolinis who have sprung up in recent years in Europe—the fall of Mussolini must have seemed—as it will be—the prelude to their own doom. Mussolini's fall may be for Hitler, too, an ominous forecast of his eventual fate."*

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